conditions is met: 5 is not arginine, 9 is not arginine, 10 is not lysine, 11 is not serine, or 13 is not phenylalanine;

2 is selected from the group consisting of alanine, valine, isoleucine, leucine, phenylalanine, methionine, tryptophan or tyrosine;

3 is selected from the group consisting of glutamine, asparagine, serine or threonine;

C 1 Cont 4 is selected from the group consisting of glycine, alanine, valine, isoleucine, leucine phenylalanine, methionine, tryptophan or tyrosine;

5 is selected from the group consisting of alanine, threonine, glutamine, asparagine or serine; and 5 may also be arginine or lysine when at least one of the following conditions is met: 1 is not arginine, 9 is not arginine, 10 is not lysine, 11 is not serine, or 13 is not phenylalanine;

6 is tryptophan or phenylalanine;

7 is lysine or arginine;

8 is selected from the group consisting of alanine, valine, isoleucine, leucine, phenylalanine or tyrosine;

9 is selected from the group consisting of alanine, threonine, glutamine, asparagine or serine; and 9 may also be arginine or lysine when at least one of the following conditions is met: 1 is not arginine, 5 is not arginine, 10 is not lysine, 11 is not serine, or 13 is not phenylalanine;

10 is selected from the group consisting of alanine, valine, isoleucine, leucine, phenylalanine, methionine, tryptophan or tyrosine; and 10 may also be arginine or lysine when at least one of the following conditions is met: 1 is not arginine, 5 is not arginine, 9 is not arginine, 11 is not serine, or 13 is not phenylalanine;

11 is alanine or valine; and 11 may also be serine when at least one of the

following conditions is met: 1 is not arginine, 5 is not arginine, 9 is not arginine, 10 is not lysine, or 13 is not phenylalanine; and 11 may also be threonine, glutamine, asparagine, lysine or arginine when 10 is not lysine;

12 is selected from the group consisting of phenylalanine, tryptophan or tyrosine;

13 is selected from the group consisting of alanine, threonine, glutamine, asparagine or serine; and 13 may also be phenylalanine, arginine or lysine when at least one of the following conditions is met: 1 is not arginine. 5 is not arginine, 9 is not arginine, 10 is not lysine or 11 is not serine; and 13 may also be glycine if 14 is lysine or arginine;

14 is selected from the group consisting of lysine, arginine or alanine; and 14 may also be valine, isoleucine, leucine, phenylalanine, methionine, tryptophan or tyrosine, if 13 is not phenylalanine; and

Y is a linear chain consisting of zero to four amino acids.

38. An LPS-binding and –neutralizing peptide according to claim 37, wherein said peptide constitutes the N-terminal region of a larger polypeptide.

39. An LPS-binding and –neutralizing peptide according to claim 37, wherein said peptide constitutes the C-terminal region of a larger polypeptide.

40. An LPS-binding and –neutralizing peptide according to claim 37, wherein said peptide is inserted into a larger polypeptide.

41. An LPS-binding and –neutralizing peptide according to claim 37, wherein at least one amino acid of said peptide is substituted by a non-natural homologous amino acid.

42. An LPS-binding and –neutralizing peptide according to claim 38, wherein the N-terminus is modified by acetylation or succinylation.

43. An LPS-binding and –neutralizing peptide according to claim 37, wherein the C-terminus is a -OH, -COOH or -$CONH_2$ group.

44. An LPS-binding and –neutralizing peptide according to claim 39, wherein the C-terminus is a -OH, -COOH or -$CONH_2$ group.

45. An LPS-binding and –neutralizing peptide according to claim 37, wherein said peptide is constrained to adopt a cyclic conformation by an intramolecular disulfide or amide bond.

46. An LPS-binding and –neutralizing peptide according to claim 41, wherein said peptide is constrained to adopt a cyclic conformation by an intramolecular disulfide or amide bond.

47. An LPS-binding and –neutralizing peptide according to claim 37, wherein the chain backbone of said peptide is substituted by backbone-mimetic organic entities.

48. An LPS-binding and –neutralizing peptide according to claim 41, wherein the chain backbone of said peptide is substituted by backbone-mimetic organic entities.

49. An LPS-binding and –neutralizing peptide according to claim 37, wherein at least one

amino acid of said peptide is substituted by alkylation using chemical or enzymatic methods.

50. An LPS-binding and –neutralizing peptide according to claim 37, wherein at least one amino acid of said peptide is glycosylated using chemical or enzymatic methods.

51. An LPS-binding and –neutralizing peptide according to claim 37, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

52. An LPS-binding and –neutralizing peptide according to claim 38, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

53. An LPS-binding and –neutralizing peptide according to claim 39, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

54. An LPS-binding and –neutralizing peptide according to claim 40, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

55. An LPS-binding and –neutralizing peptide according to claim 41, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

56. An LPS-binding and –neutralizing peptide according to claim 42, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

57. An LPS-binding and –neutralizing peptide according to claim 43, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

58. An LPS-binding and –neutralizing peptide according to claim 44, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

59. An LPS-binding and –neutralizing peptide according to claim 45, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

60. An LPS-binding and –neutralizing peptide according to claim 46, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

61. An LPS-binding and –neutralizing peptide according to claim 47, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

62. An LPS-binding and –neutralizing peptide according to claim 48, wherein said

peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

63. LPS-binding and –neutralizing peptide according to claim 49, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

64. LPS-binding and –neutralizing peptide according to claim 50, wherein said peptide further comprises a label selected from the group consisting of biotin, radioisotopes, enzymes, colloidal metals or fluorescent, chemiluminescent, or phosphorescent compounds.

65. A linear polypeptide chain containing two or more repeats of an LPS-binding and –neutralizing peptide according to claim 37, wherein said repeats of the peptide are connected by 12-25 amino acid linkers, rich in glycine, alanine, proline or serine residues.

66. A linear polypeptide chain containing a combination of two or more LPS-binding and –neutralizing peptides according to claim 37, wherein said combination of the peptides is connected by 12-25 amino acid linkers, rich in glycine, alanine, proline or serine residues.

67. A linear polypeptide chain containing two or more repeats of an LPS-binding and –neutralizing peptide according to claim 41, wherein said repeats of the peptide are connected by 12-25 amino acid linkers, rich in glycine, alanine, proline or serine residues.

68. A linear polypeptide chain containing a combination of two or more LPS-binding and –neutralizing peptides according to claim 41, wherein said combination of the peptides is

connected by 12-25 amino acid linkers, rich in glycine, alanine, proline or serine residues.

69. An arrangement of three or more LPS-binding and –neutralizing peptides according to claim 37, wherein said peptides are linked by their C-terminus to a lysine core structure.

70. An arrangement of three or more LPS-binding and –neutralizing peptides according to claim 41, wherein said peptides are linked by their C-terminus to a lysine core structure.

71. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 37 and a pharmaceutically acceptable diluent, carrier or adjuvant.

72. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 38 and a pharmaceutically acceptable diluent, carrier or adjuvant.

73. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 39 and a pharmaceutically acceptable diluent, carrier or adjuvant.

74. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 40 and a pharmaceutically acceptable diluent, carrier or adjuvant.

75. A pharmaceutical composition comprising an effective amount of an LPS-binding and

–neutralizing peptide according to claim 41 and a pharmaceutically acceptable diluent, carrier or adjuvant.

76. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 42 and a pharmaceutically acceptable diluent, carrier or adjuvant.

77. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 43 and a pharmaceutically acceptable diluent, carrier or adjuvant.

78. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 44 and a pharmaceutically acceptable diluent, carrier or adjuvant.

79. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 45 and a pharmaceutically acceptable diluent, carrier or adjuvant.

80. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 46 and a pharmaceutically acceptable diluent, carrier or adjuvant.

81. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 47 and a pharmaceutically acceptable diluent, carrier

or adjuvant.

82. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 48 and a pharmaceutically acceptable diluent, carrier or adjuvant.

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83. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 49 and a pharmaceutically acceptable diluent, carrier or adjuvant.

84. A pharmaceutical composition comprising an effective amount of an LPS-binding and –neutralizing peptide according to claim 50 and a pharmaceutically acceptable diluent, carrier or adjuvant.